

FORM PTO-1390  
(REV 10-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371REN-12804  
C18 Rec'd PCT/PTO 23 JAN 2002  
U.S. APPLICATION NO. (If known, see 37 CFR 1.5)  
**10/048132**INTERNATIONAL APPLICATION NO.  
PCT/EP00/02412INTERNATIONAL FILING DATE  
17 March 2000PRIORITY DATE CLAIMED  
17 August 1999TITLE OF INVENTION  
SAMPLE DISPENSERAPPLICANT(S) FOR DO/EO/US  
Wolfgang Heimberg et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/E O/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Translation of Amended Claims

## Items 11 to 16 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☐ Other items or information:

U.S. APPLICATION NO. 10/048132 INTERNATIONAL APPLICATION NO. PCT/EP00/02412			ATTORNEY'S DOCKET NUMBER REN-12804		
<p>17. <input checked="" type="checkbox"/> The following fees are submitted:</p> <p><b>BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5) ) :</b></p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... <b>\$1000.00</b></p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$860.00</b></p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b></p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b></p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b></p> <p style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></p>			<b>CALCULATIONS</b> PTO USE ONLY		
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).					
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	- 20 =	0	X \$18.00	\$ 0.00	
Independent claims	- 3 =	0	X \$80.00	\$ 0.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 860.00	
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$ 430.00	
<b>SUBTOTAL =</b>				\$ 430.00	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
<b>TOTAL NATIONAL FEE =</b>				\$ 430.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). <b>\$40.00</b> per property				\$	
<b>TOTAL FEES ENCLOSED =</b>				\$ 430.00	
				Amount to be refunded:	\$
				charged:	\$

a. ☒ A check in the amount of \$ 430.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 18-0160. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:


Customer No. 007609

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SIGNATURE  
  
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\_\_\_\_\_  
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32,119  
\_\_\_\_\_  
REGISTRATION NUMBER

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of	:	
	:	Group Art Unit
Wolfgang Heimberg et al.	:	
	:	Examiner
Serial No.	:	
	:	Confirmation No.
Filed: January , 2002	:	
	:	U.S. National Filing of
For: SAMPLE DISPENSER	:	PCT/EP00/02412
	:	Filed 17 March 2000

Box PATENT APPLICATION  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Dear Sir:

Prior to calculating the filing fee and examining the above noted application, please proceed to amend the application as follows:

**In the Claims:**

Please cancel pending claims 1-10 and add new claims 11-27 as follows:

11. (NEW) Sample dispenser, for the application of liquid samples with a sample volume of less than 1  $\mu$ l on to a sample absorbing area, with a sample dispenser body having at its end a sample pick-up surface bounded by a continuous edge, wherein the sample pick-up surface is provided with a recess such that, when the sample pick-up surface is dipped into a sample reservoir, a droplet of liquid sample of predetermined size adheres to the sample pick-up surface and by placing of the sample pick-up surface on the sample absorbing area is completely dispensed, and

wherein the recess is in the shape of a flat trough, with a depth of less than 50% of the width of the sample pick-up surface.

12. (NEW) Sample dispenser according to claim 11, wherein the sample pick-up surface is less than 2 mm<sup>2</sup>.

13. (NEW) Sample dispenser according to claim 11, wherein the sample pick-up surface is less than 1 mm<sup>2</sup>.

14. (NEW) Sample dispenser according to claim 11, wherein the recess has a shape selected from the group consisting of a hollow cone and a segmented hollow sphere.

15. (NEW) Sample dispenser according to claim 12, wherein the recess has the shape of a hollow cone or a segmented hollow sphere.

16. (NEW) Sample dispenser according to claim 14, wherein the hollow cone shaped recess is made by drilling.

17. (NEW) Sample dispenser according to 11, wherein the sample pick-up surface is polished.

18. (NEW) Sample dispenser according to claim 15, wherein the sample pick-up surface is polished.

19. (NEW) Sample dispenser according to claims 11, wherein the sample pick-up surface is represented by a free end face of the sample dispenser body in the form of an elongated body.

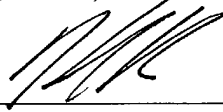
20. (NEW) Sample dispenser according to claim 18, wherein the sample pick-up surface is represented by a free end face of the sample dispenser body in the form of an elongated body.

21. (NEW) Sample dispenser according to claim 11, wherein the sample dispenser body has as its tip a cylinder section with a diameter of from about 1 mm to about 2 mm.

22. (NEW) Sample dispenser according to claim 11, wherein the sample dispenser body has as its tip a cylinder section having a diameter of from about 1.2 mm to about 1.7 mm.
23. (NEW) Sample dispenser according to claim 20, wherein the sample dispenser body has as its tip a cylinder section with a diameter of from about 1 mm to about 2 mm.
24. (NEW) Sample dispenser according to claim 20, wherein the sample dispenser body has as its tip a cylinder section having a diameter of from about 1.2 mm to about 1.7 mm.
25. (NEW) Sample dispenser according to claim 21, wherein the cylinder section is provided with two parallel flattened walls, preferably spaced from about 0.8 mm to about 1.2 mm apart.
26. (NEW) Sample dispenser according to claim 23, wherein the cylinder section is provided with two parallel flattened walls, preferably spaced from about 0.8 mm to about 1.2 mm apart.
27. (NEW) Method for cleaning a sample dispenser according to claim 11, wherein the sample dispenser is pressed into a foam material for cleaning of the recess.

Respectfully submitted,

**RANKIN, HILL, PORTER & CLARK LLP**



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### Sample Dispenser

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The invention relates to a sample dispenser for the application of liquid samples to a sample absorbing area.

Sample dispensers for the transfer of very small amounts of sample are known, in which a capillary may be used to draw in a liquid sample and deliver it to a sample area. For this purpose the sample area must have an absorbent material which sucks the sample liquid from the capillary. The capillary of this sample dispenser is inserted into a thin spring leaf, as in a fountain pen. With a sample dispenser of this kind, very small quantities can be absorbed very precisely, since the amount is defined exactly by the capillary. However, it has been found that delivery of the sample amount held in the capillary involves considerable problems, since the absorbent material forming the sample absorbing area requires a very strong suction effect, otherwise residues of the sample liquid remain in the capillary. These sample dispensers with capillary are therefore usable only for special sample absorbing areas and it is also difficult to use such sample dispensers in an automated process which does not always involve a check as to whether or not the sample liquid held in the capillary is being completely transferred to the sample absorbing area.

Known from DE 197 00 626 A1 is a membrane comb made from a porous material such as e.g. a nylon membrane coated with hydroxyl groups. A sample amount of around 0.2 to 0.3 microlitres should be applied to each individual tooth of this membrane comb. The sample material is e.g. DNA in formamide. In transferring the sample material to the teeth of this membrane comb, it was not possible to obtain a satisfactory result in transferring the sample liquid to the individual teeth of the membrane combs.

Also known are sample dispensers in the form of tips, with which it should be possible to transfer metered amounts of viscous media. These sample

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dispensers have, however, proved unsuccessful for the application described above involving the metered transfer of formamide, since no drops or else only drops containing widely varying amounts adhere to it.

5 WO 93/09872 describes a plate with reaction vessels (e.g. Figure 5), similar in form to a micro-titration plate. A metering device is provided to supply chemicals. This metering device has projections to which drops of chemicals can adhere. These projections are in part in the form of hollow-cylindrical bodies.

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WO 98/57747 discloses a further sample dispenser which is in the form of a rod with a wettable tip and non-wettable sides. In this patent application it is specified that the rod may in principle have any desired cross-section (oval, polygonal, etc.), and that it may be made of glass or any other material.

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DE 30 16 682 A1 relates to a blood serum applicator. The applicator described therein has a porous section by which the blood serum is transferred. Prior art is described in this patent application, and illustrated in Figures 1A to 2B which show a sample dispenser with recesses in which the

20

Described in US 5,882,930 is a sample dispenser formed of a transfer element on which pins are arranged in a regular grid pattern. Sample droplets are able to adhere to the free tips of the pins. The pins have preferably a

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WO 98/5852 describes a sample applicator with pins fastened to a holding structure. The pins are so thin that their tips become surrounded by drops.

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Described in US 5,756,050 is a further sample dispenser which has a bar with a conical tapered tip. The end of the tip is provided with a hydrophilic coating. A hydrophobic coating is applied to the adjacent surfaces.

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The invention is based on the problem of creating a sample dispenser for the application of liquid samples to a sample absorbing area, which is of simple design, can reliably take up and reliably transfer to a sample absorbing area small sample volumes ( $< 1$  microlitre), and is suitable for automatic operation in which not every sample take-up and every sample delivery can be checked individually.

The problem is solved by a sample dispenser with the characteristics of claim 1. Advantageous developments of the invention are specified in the subsidiary claims.

The sample dispenser according to the invention for the application of liquid samples to a sample absorbing area is formed by a sample dispenser body with a sample pick-up surface. The sample pick-up surface is bounded by a continuous edge and is provided with a flat recess such that, when the sample pick-up surface is dipped, a droplet of liquid sample of predetermined size adheres to the sample pick-up surface and is dispensed by placing of the sample pick-up surface on the sample absorbing area.

Tests have shown that, with the sample dispenser according to the invention, the desired amounts of liquid samples are reliably taken up solely by dipping the sample pick-up surface into the liquid sample, and reliably dispensed solely by placing on the sample absorbing area. The sample absorbing area has preferably a certain absorbency which, however, may be significantly less than that required in the use of the sample dispensers with capillaries described above.

The sample dispenser according to the invention is very simple in design; the sample quantity which it is desired to transfer is set by the recess of the sample pick-up surface and is reproducible with surprising exactness. The sample quantity is influenced by the physical properties, in particular the surface tension, of the sample liquid. The greater the surface tension of the sample liquid, the larger are the liquid droplets transferred by the sample



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dispenser according to the invention. The nature of the sample liquid is therefore to be taken into account in dimensioning the recess of the sample pick-up surface.

- 5 In the course of developing the present invention, various types of sample dispenser have been tested, e.g. pipette tips, steel capillaries, glass capillaries and various sample dispensers with long grooves or notches. With all these sample dispensers, the problems described above regarding transfer of the sample liquid to the sample absorbing area occurred.

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Also tested was a sample dispenser with a flat sample pick-up surface of predetermined size, in which the surface had been roughened. While this embodiment certainly allowed for reliable transfer of the sample liquid to the sample absorbing area, sample droplets of widely varying size were taken up  
15 on dipping into the sample liquid, so that with this sample dispenser too it is not possible to transfer a reproducible sample quantity.

15

Only the sample dispenser according to the invention has met the requirements satisfactorily, so that it may also be used in an automatic  
20 process.

20

The invention is described in detail below with the aid of the embodiments depicted in the drawings, which show:

- 25 Fig. 1 a side view of a first embodiment of a sample dispenser according to the invention
- Fig. 2 the sample dispenser according to Fig. 1 in longitudinal section
- 30 Fig. 3 a perspective view of the sample dispenser according to Fig. 1 viewed diagonally from above

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Fig. 4 an enlarged section of the tip of the sample dispenser according to Fig. 1

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Fig. 5 a perspective view of the tip of the sample dispenser according to Fig. 1 viewed diagonally from below

Fig. 6 a side view of a second embodiment of a sample dispenser according to the invention

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Fig. 7 the sample dispenser according to Fig. 6 in longitudinal section

Fig. 8 a perspective view of the sample dispenser according to Fig. 6 viewed diagonally from above

15 Fig. 9 an enlarged section of the tip of the sample dispenser according to Fig. 6

Fig. 10 an enlarged view of the tip of Fig. 6 seen from the side

20 Fig. 11 a perspective view of the tip of the sample dispenser according to Fig. 6 viewed diagonally from below.

Figs. 1 to 5 show a first embodiment of the sample dispenser according to the invention. The sample dispenser according to the invention has a sample  
25 dispenser body 1 made of an aluminium alloy, comprising a rod-shaped shank section 2, a conical tapering transition section 3, and a tip 4 connected to the conical tapering transition section 3. The tip 4 is cylindrical in shape. The length of the shank section 2 is roughly 20 mm, that of the transition section 3 roughly 19 mm, and the length of the tip 4 is approx. 2 mm. The diameter of  
30 the tip is approx. 1 mm.

The free end of the tip 4 forms a sample pick-up surface 5. In the present embodiment the sample pick-up surface 5 is circular (Fig. 3, Fig. 5), so that it

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is bounded by a circular edge 6. The sample pick-up surface 5 is provided with a conical recess 7, arranged concentrically to the longitudinal axis 8 of the sample dispenser, while the conical surfaces formed by the conical recess end at the edge 6 which bounds the sample pick-up surface 5. The angle  $\alpha$  which encloses the conical recess lies in the range 90° to 150°, and in the depicted embodiment is 120°. A recess of this kind is easily made with a drilling tool. The recess 7 made with a drilling tool has smooth inner surfaces which require no finishing apart from deflashing of the edges. It has been shown that a smooth sample pick-up surface 5 is advantageous since it allows better transfer of the sample liquid from the sample dispenser to a sample absorbing area. If the recess 7 is made by a method other than drilling, in which the surface is roughened, it is expedient for the surface to be smoothed by polishing.

Introduced from the upper end of the shank section 2, concentric to the longitudinal axis 8, is a hole 9 extending as far as the transition section 3. Introduced in the area of the upper end of the sample dispenser body 1, at right-angles to the hole 9, is a tapped hole 10. A locating bar of an operating device, e.g. of a robot for amplifying or sequencing DNAs, may be inserted in the hole 9 and fixed by means of a screw screwed into the tapped hole 10. The sample dispenser according to the invention is fastened to the operating device with the sample pick-up surface 5 facing downwards.

In operation the sample dispenser with its sample pick-up surface 5 is dipped into a sample reservoir, causing a sample droplet to be taken up by the sample pick-up surface 5. The size of the droplet is determined by the sample pick-up surface 5 and the recess 7. The sample droplet adheres to the sample pick-up surface 5 due to wetting forces, which are generally van-der-Waals forces. The sample dispenser is then placed on the sample absorbing area by its sample pick-up surface 5, with the sample pick-up surface 5 being pressed on to the sample absorbing area. By this means, the sample droplet adhering to the sample pick-up surface 5 is completely transferred to the sample absorbing area. If the recesses 7 are deeper it may be expedient to make the

It has been found expedient for the depth of the trough-shaped recess 7 to be no greater than 50% of the diameter of the sample pick-up surface 5.

Cleaning of the sample dispenser according to the invention is effected by pressing into a wetted foam material, by which means the recess 7 and the adjacent surface of the sample dispenser are cleaned. The foam material is open-celled and is wetted with water. However it is also possible to add a cleansing agent to the water.

Figures 6 to 11 show a second embodiment of the sample dispenser according to the invention, substantially similar to the first embodiment, for which reasons identical parts are denoted by the same reference number. The only difference from the first embodiment lies in the fact that the cylinder of tip 4 has a greater diameter, namely 1.5 mm, and that tip 4 is flattened into two parallel surfaces 11 in the area of the circumferential surface of the cylinder bordering the sample pick-up surface 5 (Figs. 9 to 11). The two flattened surfaces 11 are arranged at a distance d of approx. 1 mm from one another. Viewed from below (Fig. 11) this gives a roughly rectangular sample pick-up surface 5 with short side edges bent outwards.

As compared with the first embodiment, the second embodiment has a greater sample pick-up surface 5, so that it may also be used to take up larger sample droplets. However, the distance between the parallel surfaces 11 is no greater than the diameter of the sample pick-up surface 5 of the first embodiment, so that the sample dispenser according to the second embodiment may also be fitted against sample absorbing areas with limited space, e.g. the teeth of membrane combs known from DE 197 00 626 A1.

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The invention has been explained in detail above with the aid of two embodiments. It is of course not restricted to the specific design of the embodiments. An important feature of the invention is that the sample pick-up surface 5 is bounded by a continuous edge, so that its area is clearly defined, by which means the sample pick-up volume is also determined, together with other parameters such as the depth and shape of the recess 7 and the nature of the sample liquid. The continuous edge may, as in the depicted embodiments, be formed by a body edge, with adjacent body areas of the sample dispenser abutting one another at a right-angle or at a smaller angle. The edge may however also be formed by a narrow annular web on a flat or curved surface. A further important aspect of the invention is the recess since, because of this feature and on account of the adhesion forces and the surface tension of the sample liquid, on the one hand reliable take-up of a predetermined quantity of sample liquid and on the other hand reliable transfer to a sample absorbing area are ensured.

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**List of reference numbers**

- |    |    |                        |
|----|----|------------------------|
|    | 1  | sample dispenser body  |
| 5  | 2  | shank section          |
|    | 3  | transition section     |
|    | 4  | tip                    |
|    | 5  | sample pick-up surface |
|    | 6  | edge                   |
| 10 | 7  | recess                 |
|    | 8  | longitudinal axis      |
|    | 9  | hole                   |
|    | 10 | tapped hole            |
|    | 11 | flattened surface      |

### Patent Claims

1. Sample dispenser, for the application of liquid samples on to a sample  
5 absorbing area, with a sample dispenser body (1) having at its end a sample  
pick-up surface (5) bounded by a continuous edge (6), wherein the sample  
pick-up surface (5) is provided with a recess (7) such that, when the sample  
pick-up surface (5) is dipped into a sample reservoir, a droplet of liquid sample  
of predetermined size adheres to the sample pick-up surface (5) and by  
10 placing of the sample pick-up surface (5) on the sample absorbing area is  
completely dispensed, and wherein the recess (7) is in the form of a flat  
recess (7) with a depth which is less than its width.
2. Sample dispenser according to claim 1,  
15 **characterized in that**  
the flat recess (7) has a depth which is less than 50% of its width.
3. Sample dispenser according to claim 1 or 2  
**characterized in that**  
20 the sample pick-up surface (5) is less than 2 mm<sup>2</sup> and preferably less than 1  
mm<sup>2</sup>.
4. Sample dispenser according any of claims 1 to 3,  
**characterized in that**  
25 the recess (7) has the shape of a hollow cone or a segmented hollow sphere.
5. Sample dispenser according to any of claims 1 to 4,  
**characterized in that**  
the hollow cone shaped recess (7) is made by drilling.  
30
6. Sample dispenser according to any of claims 1 to 5,  
**characterized in that**  
the sample pick-up surface (5) is polished.

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7. Sample dispenser according to any of claims 1 to 6,

**characterized in that**

the sample pick-up surface (5) is represented by a free end face of the sample

5 dispenser body (1) in the form of an elongated body.

8. Sample dispenser according to claim 7,

**characterized in that**

the cylinder section is provided with two parallel flattened walls (11),

10 preferably spaced 0.8 mm to 1.2 mm apart.

9. Sample dispenser according to any of claims 8 to 10,

**characterized in that**

the sample dispenser body (1) has as its tip (4) a cylinder section with a

15 diameter of 1 mm to 2 mm, wherein the cylinder section preferably has a  
diameter of 1.2 mm to 1.7 mm.

10. Cleaning device for a sample dispenser according to any of claims 1 to 9,

**characterized in that**

20 the cleaning device is a part made of foam material.

(Fig. 8)



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### Summary

- The invention relates to a sample dispenser, for the application of liquid
- 5 samples on to a sample absorbing area, with a sample dispenser body (1) having at its end a sample pick-up surface (5) bounded by a continuous edge (6), wherein the sample pick-up surface (5) is provided with a recess (7) such that, when the sample pick-up surface (5) is dipped into a sample reservoir, a droplet of liquid sample of predetermined size adheres to the sample pick-up
- 10 surface (5) and by placing of the sample pick-up surface (5) on the sample absorbing area is completely dispensed, and wherein the recess (7) is in the form of a flat recess (7), that is to say, it has a depth which is less than its width.
- 15 The sample dispenser according to the invention is of very simple design. In using it, the desired sample amount to be transferred is determined by the flat recess of the sample pick-up surface and can be reproduced very precisely.

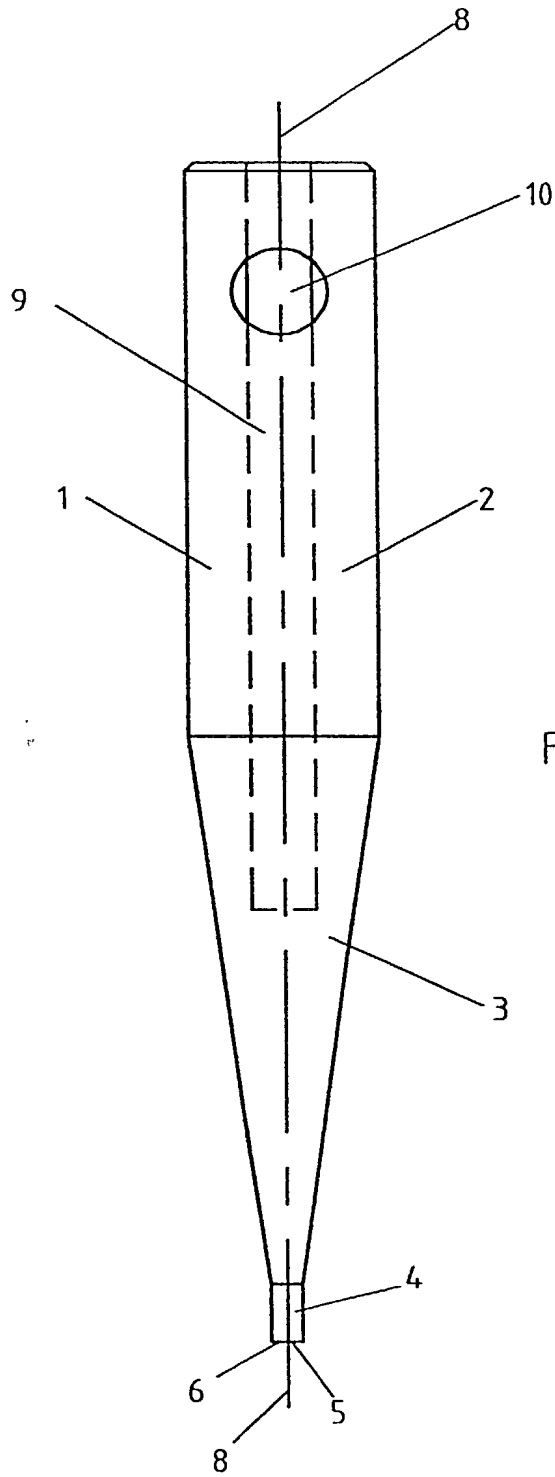
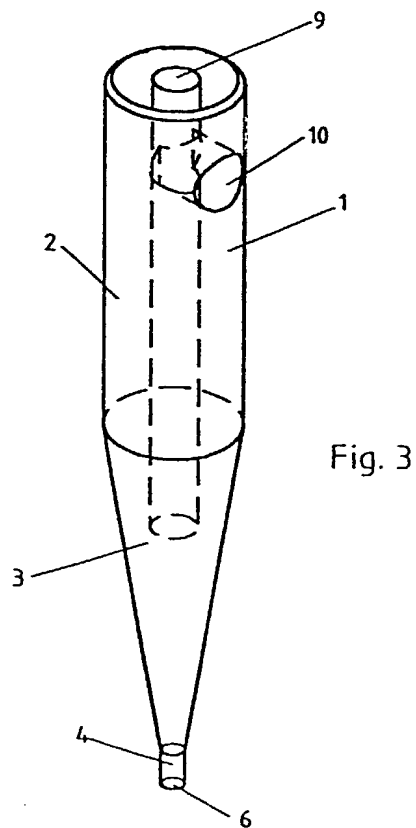
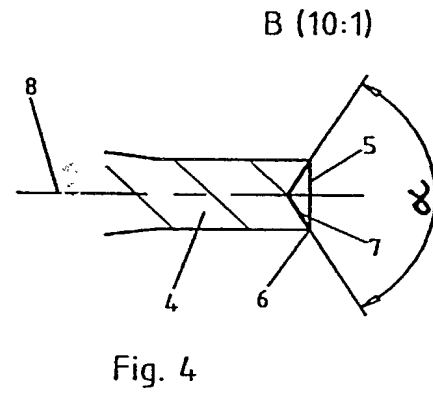
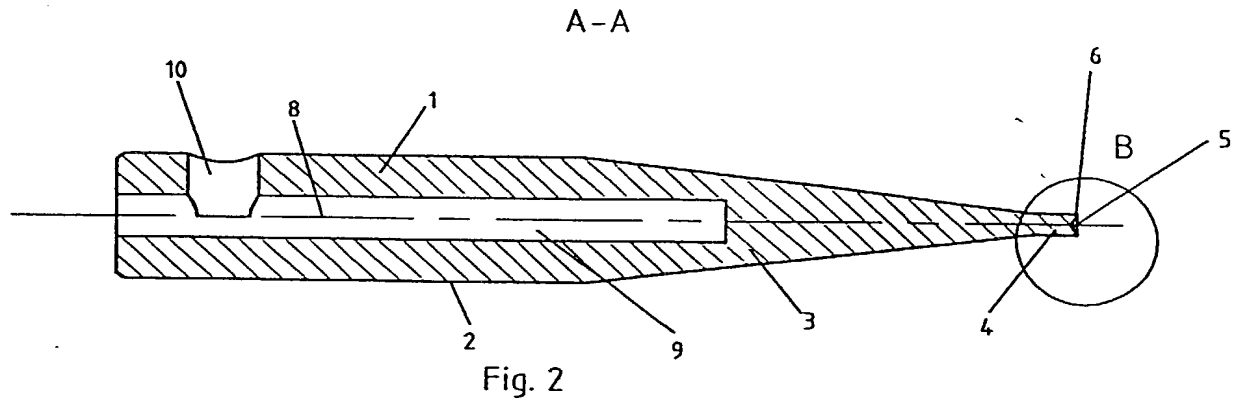


Fig. 1



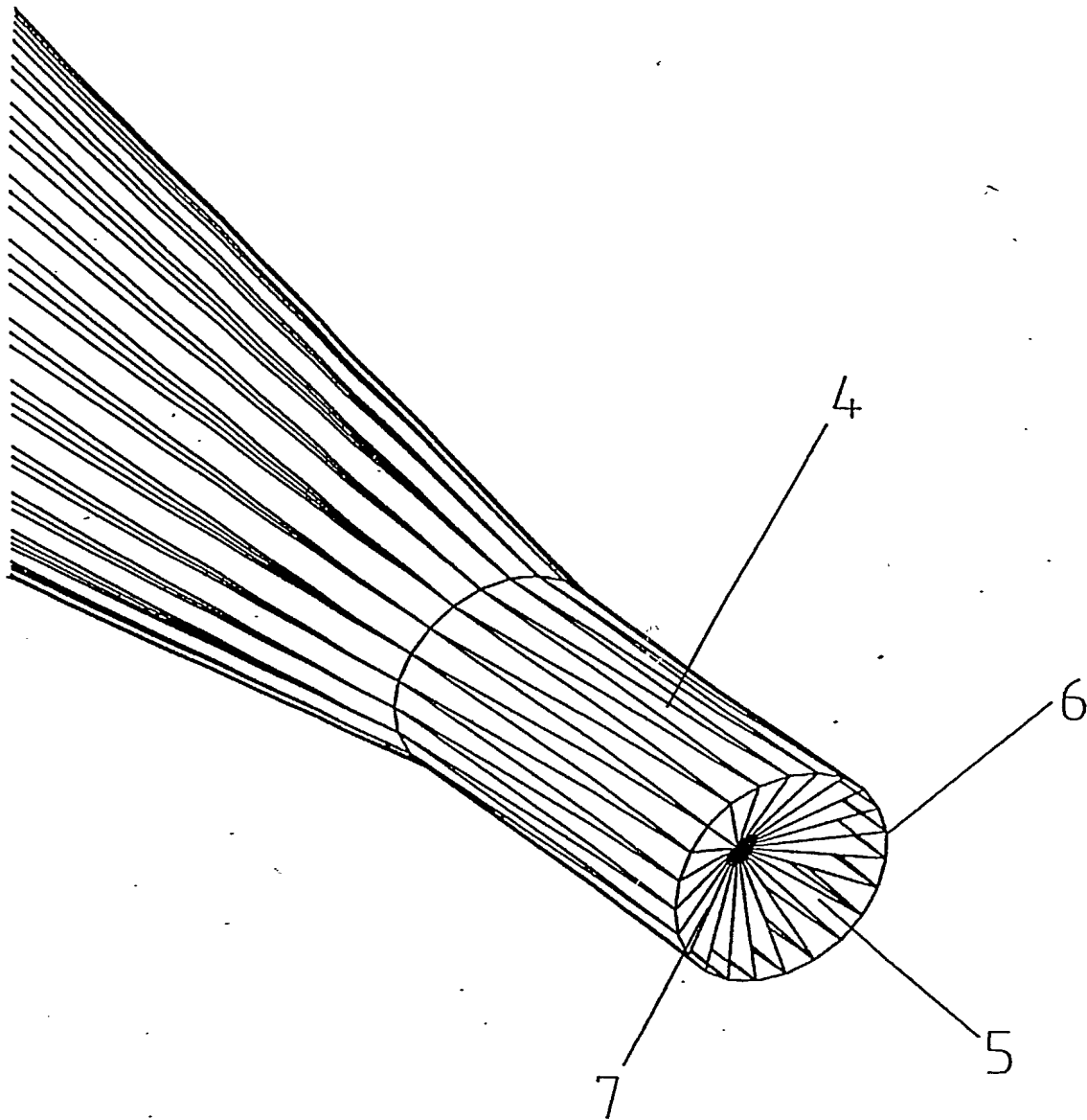


Fig. 5

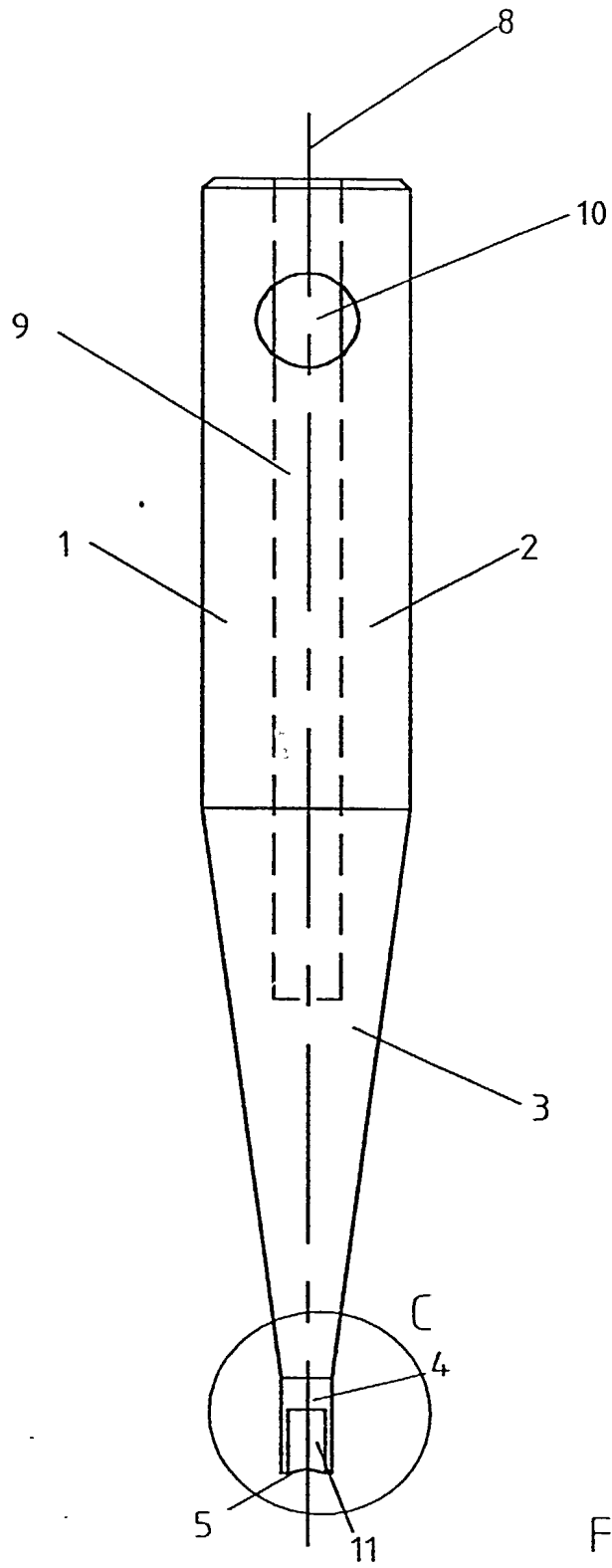


Fig. 6

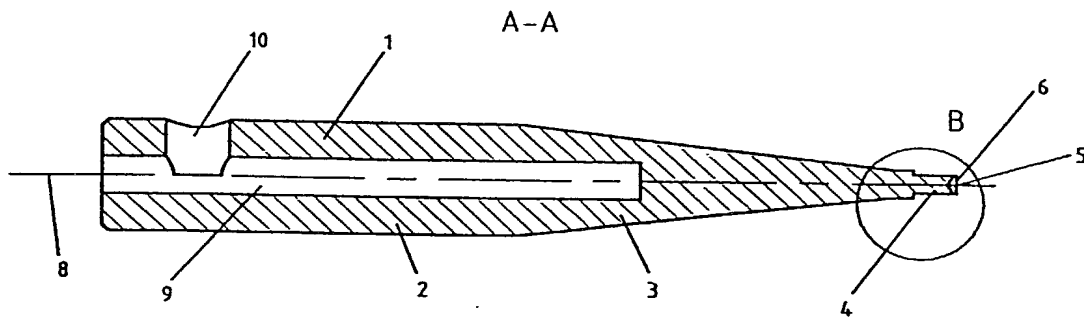


Fig. 7

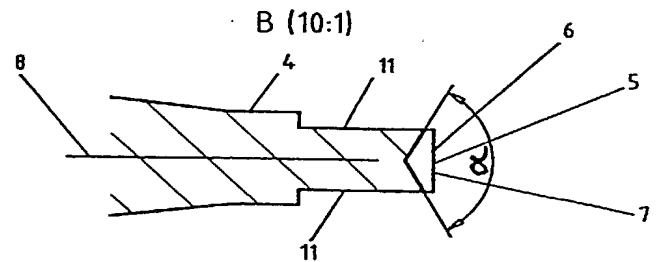


Fig. 9

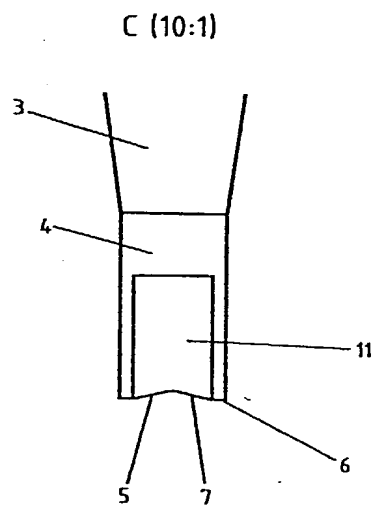


Fig. 10

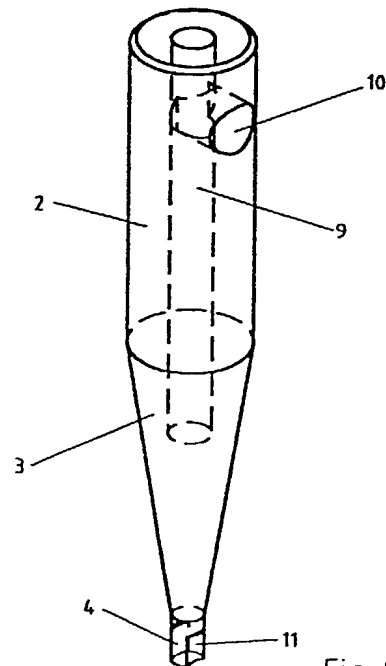


Fig. 8

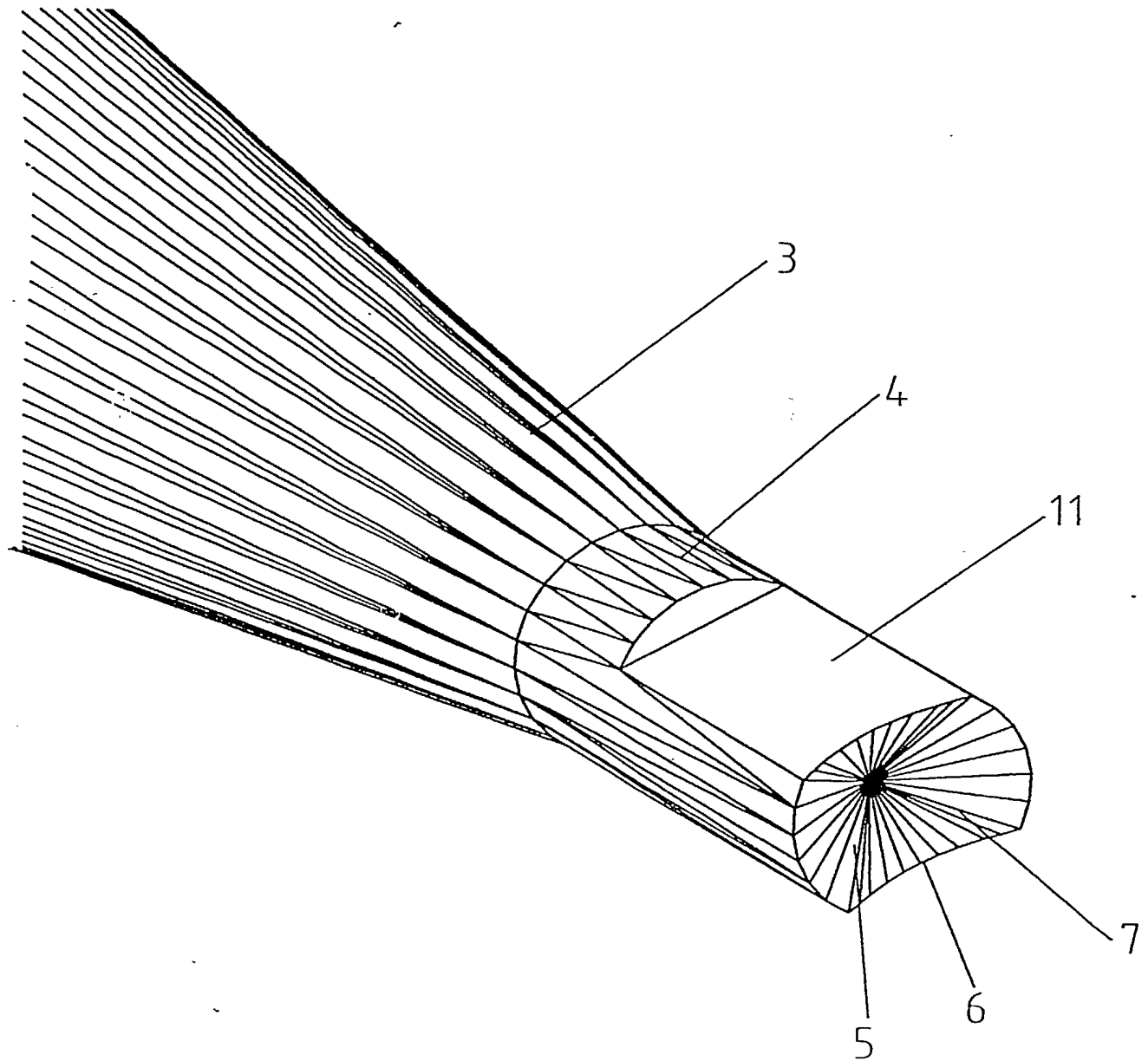


Fig.11

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DESIGN  
PATENT APPLICATION  
(37 CFR 1.63)**

☐ Declaration Submitted with Initial Filing OR ☒ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	REN-12804
First Named Inventor	Wolfgang Heimberg
<b>COMPLETE IF KNOWN</b>	
Application Number	10 / 048132
Filing Date	23 January 2002
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SAMPLE DISPENSER

(Title of the Invention)

the specification of which

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Application Number 10/048132

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I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

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Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
29914360.0 PCT/EP00/02412	Germany PCT	08/17/1999 03/17/2000	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

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[Page 1 of 2]

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